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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,540	08/05/2003	Hisashi Iida	2018-761	6436

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EXAMINER	
OLSEN, KAJ K	

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/633,540	IIDA ET AL.	
	Examiner	Art Unit	
	Kaj K. Olsen	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8-5-03;12-30-05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to. In fig. 21, it appears that the "sdloxsl" of line (i) should be --sdloxsh--. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 7-198,672 (hereafter "JP '672").

4. JP '672 discloses an apparatus for detecting a deterioration of an oxygen sensor comprising an oxygen sensor having an electrode on a solid electrolyte element (fig. 3 and paragraphs 0011 and 0016) and a temperature adjusting means for adjusting the temperature of the solid electrolyte element to at least two different temperatures (fig. 2 and paragraph 0018). JP '672 further discloses a deterioration detection means based on the outputs of the sensor produced when the temperature of the solid electrolyte element is adjusted to the two different temperatures by the temperature adjusting means. See paragraphs 0027-0041. With respect to the sensor of JP '672 being an air-fuel ratio sensor, air-fuel ratio sensors are oxygen sensors like those of JP '672 and the examiner does not believe there is any structural distinction between an air-fuel sensor and the oxygen sensor of JP '672.

5. With respect to the temperature adjusting means supplying or stopping heat to the solid electrolyte element, that would be inherent for any heating system that has the capability to heat up the device and allow for the device to cool down.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasui et al (USP 6,935,155) in view of Hasegawa et al (USP 6,258,232). Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. If applicant provides a certified translation of the foreign priority document, the examiner will withdraw this rejection. See MPEP § 201.15.

8. Yasui discloses an apparatus for detection a deterioration of an air-fuel ratio ssor comprising an air-fuel ratio sensor 17, a temperature adjustment means for adjusting the temperature to at least two different temperatures, and an air-fuel ratio deterioration detection means for detecting a deterioration of the air-fuel ratio sensor based on the outputs from the sensor at two different temperatures of the solid electrolyte element. See fig. 17 and 19 and col. 12, l. 28 through col. 15, l. 10. Yasui does not explicitly disclose that the air-fuel ratio sensor comprises an electrode and a solid electrolyte element. However, Hasegawa teaches that air-fuel ratio sensor typically comprise at least one electrode and solid electrolyte element. See col. 6, ll. 12-33. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the sensor of Hasegawa for the apparatus of Yasui because the use of a conventional gas sensor configuration would have required only routine skill in the art.

9. With respect to the engine being in a predetermined operating condition, see Yasui, col. 13, ll. 29-52.

10. With respect to the use of an output parameter, Yasui relies on an output frequency of the air-fuel sensor. See fig. 11c as an example.

11. With respect to detecting the temperature via an internal resistance of the air-fuel sensor and adjusting the temperature accordingly, see Hasegawa, fig. 11 and col. 9, l. 50 through col. 10, l. 53.

12. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa in view of JP '672.

13. Hasegawa discloses an apparatus comprising a air-fuel ratio sensor having an electrode on a solid electrolyte element (col. 6, ll. 12-33), and a temperature adjusting means (see fig. 9b). Hasegawa did not explicitly disclose the use of the temperature adjusting means to adjust between two predetermined temperatures and the presence of a deterioration detection means based on the sensor output from the two different temperatures. However, the previously discussed JP '672 taught the use of such a means for an analogous oxygen sensor that allowed for the deterioration of the oxygen sensor to be determined from two different temperatures. See the art rejection above. It would have been obvious to one of ordinary skill in the art at the time the invention was being made for Hasegawa to utilize the deterioration detection of JP '672 so that one does not attempt to control the air-fuel ratio with a deteriorated sensor.

14. With respect to the engine being in a predetermined operating condition, see Hasegawa, col. 14, ll. 29-35.

15. With respect to the use of an output parameter, JP '672 relies on a differential between responses at the two different temperature values. See fig. 5.

16. With respect to detecting the temperature via an internal resistance of the air-fuel sensor and adjusting the temperature accordingly, see Hasegawa, fig. 11 and col. 9, l. 50 through col. 10, l. 53.

17. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa in view of JP '672 as applied to claim 1 above, and further in view of Scheid et al (USP 5,811,661).

18. The references set forth all the limitations of the claim, but did not explicitly recite that the air-fuel sensor is installed downstream from a catalyst. Scheid teaches in an alternate apparatus that air-fuel sensors are installed both upstream and downstream of a catalyst in order to measure both the operation of the engine and the catalyst. See fig. 1 and col. 3, l. 65 through col. 4, l. 12. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Scheid for the apparatus of Hasegawa and JP '672 so that the operational state of the catalyst can also be monitored.

19. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Yasui in view of Hasegawa or Hasegawa in view of JP '672 as applied to claim 1 above, and further in view of Kato et al (USP 6,120,663).

20. The references set forth all the limitations of the claim, but did not explicitly recite the presence of a temperature adjusting failure detecting means. Kato discloses that the a temperature monitoring means can be utilized to determine if an expected output of the temperature detection means is arrived at within a predetermined period of time. See col. 3, l. 60 through col. 4, l. 5. It would have been obvious to one of ordinary skill in the art to utilize the teaching of Kato for the apparatuses of either Yasui in view of Hasegawa or Hasegawa in view of JP '672 so that the expected temperature changes needed for both of Yasui and JP '672 are

arrived at within a predetermined period of time. Moreover, because the failure to arrive at the desired temperature would be indicative of a sensor failure (Kato, col. 24, ll. 44-48), one possessing ordinary skill in the art would have been motivated to perform this before any deterioration detection means of Yasui or JP '672 because the sensor has already been found to be in error.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (571) 272-1344. The examiner can normally be reached on Monday through Friday from 8:00 A.M. to 4:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen, can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AU 1753
December 11, 2006

KAJ K. OLSEN
PRIMARY EXAMINER